Department of Health and Human Services

Centers for Medicare & Medicaid Services

CMS Expedited Life Cycle Process: Detailed Description

Version 2.7

May 3, 2012

Record of Changes

#	Date	Reference	A=Add M=Modify D=Delete	Description of Change	CR #
1	August 25, 2011	All	A	Initial Working Draft	NA
2	January 27, 2012	Complexity Focus Group	M	Section 2, Project Complexity Description	NA
3	March 05, 2012	Governance Team Review	A, M	• Section 1 edits for clarity, added Section 1.4 on starting a project • Section 2 and Section 6, removed references to Cost Estimation Tool (CET) • Section 5 alignment and consistency changes, consolidated artifacts definition, removed references to core and recommended artifacts. • Revised graphics for Figures 1-3, updated Figure 9 for consistency • Revised Section 6, Appendix, to align with Section 5 updates	NA
4	March 13, 2012	Governance Team Review	M	• Updated Figures 3, 6-13 • Updated Security Artifacts life cycle in Figure 9 and Sections 5 & 6	NA
5	March 14, 2012	CMS	M	• Changed Table/Figure captions and references to them. Added List of Tables in TOC.	NA
6	March 21, 2012	Governance Team Review	A, M	• Modified Figure 3 for CL 2 • Modified Section 6.2 to align with CL 2 • Figure 5 marked as sample. • Sections 1.3 and 2 minor updates • Section 4: added 4 roles, modified GO definition, deleted reference to ERR • Section 5 minor edits	NA
7	March 28, 2012	Governance Team Review	M	• Modified Figure 3 to correct IAT definition to Independent Assessment Team • Replaced Figure 5 with new Starting a Project graphic and revised accompanying text.	N/A
8	April 5, 2012	CMS	M	• Promoted Detailed Design Review to governance review for Complexity Level 3 • Removal of Project Startup Review	2012-01 2012-02
9	April 16, 2012	Governance Team Review	M	• Revised Figure 2: Expedited Life Cycle Process Flow, for improved 508 compliance, inclusion of the initial idea presentation	NA
10	May 3, 2012	Governance Team Review	M	• Revised Guidance Officer definition in Section 4	NA

CR: Change Request

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1. The CMS Expedited Life Cycle (XLC) Introduction

CMS is committed to strengthening of its system development life cycle processes. Given the need to respond quickly to business demands, CMS created a streamlined model to guide and coordinate IT Projects, the CMS Expedited Life Cycle.

The XLC offers a simplified consistent IT oversight framework to assist:

- IT Project Managers
- Business Owners
- Critical Partners
- Other Stakeholders

The XLC includes three project complexity levels to help teams identify which artifacts and reviews are needed for their projects. The prime purpose of these options is to balance speed and oversight appropriately with the complexity and risk associated with a project.

1.1 High Level Process Overview

There are five key activities that bridge the project phases. Typically, once the idea has been defined, the project is reviewed for architectural compliance and IT investment. Once approved, the project follows the various phases of completion with on-going involvement from appropriate stakeholders. This includes involvement from:

- Project Team
- Governance boards
- Business owners
- CMS Office of Information Services (OIS)
- Leadership

Figure 1: Five Key Activities depicts the key high level activities associated with the development life cycle of a typical project. Each of the high level activities has specific work associated with it and different stakeholders involved.

Activity 1: Staff Work

The project team defines the idea and creates the preliminary set of documentation starting with the IT Intake Request Form. This documentation articulates the business need, scope, and high level architecture.

Activity 2: Reviews

Activity 2 involves a review with the Business Architecture and Technology Solutions (BATS) Board to institutionalize governance of the shared services approach through initial needs assessments and architecture reviews. This constitutes the first review of the XLC – the Architecture Review (AR). The BATS Board also works with the project team to determine the level of complexity for the project and subsequently assigns an XLC option. The BATS Board may delegate the AR to the TRB.

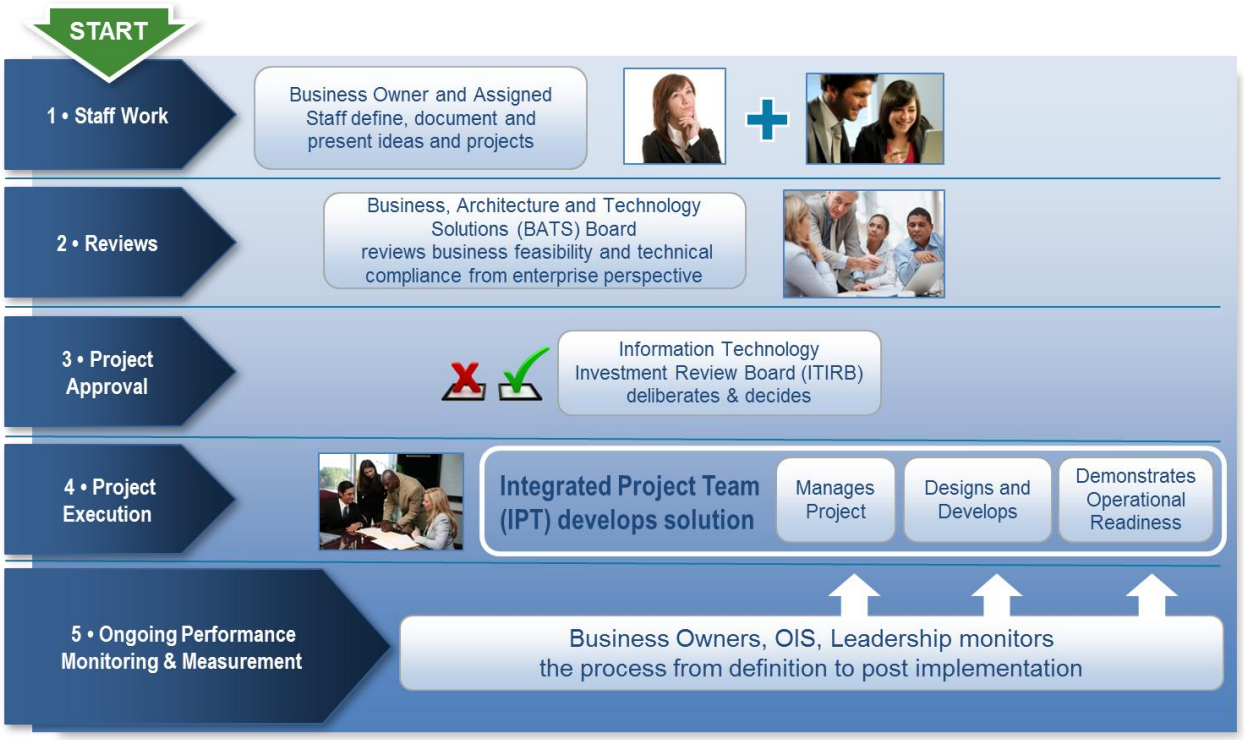


Figure 1: Five Key Activities

Activity 3: Project Approval

An approval from BATS Board kicks off Activity 3 which culminates with a review by the IT Investment Review Board (ITIRB) with a focus on strategic enterprise-level shared solutions. This constitutes the second review of the XLC – the Investment Selection Review (ISR).

Activity 4: Project Execution

An approval from the ITIRB kicks off Activity 4 which constitutes the project execution and any reviews appropriate for that project depending on the complexity level of that project.

Activity 5: Ongoing Performance Monitoring & Measurement

Activity 5 is the ongoing performance monitoring throughout the process.

Figure 2: Expedited Life Cycle Process Flow depicts the process flow of the five key activities.

1.2 Expedited Life Cycle Model

The XLC model provides a streamlined approach to project oversight and execution. It is the next generation of project life cycle processes with a flexible approach to project execution and governance where the level of governance is directly associated with the complexity of the project. This model promotes agility, effective review of projects, and determines appropriate oversight early in the process – increasing predictability and efficiency.

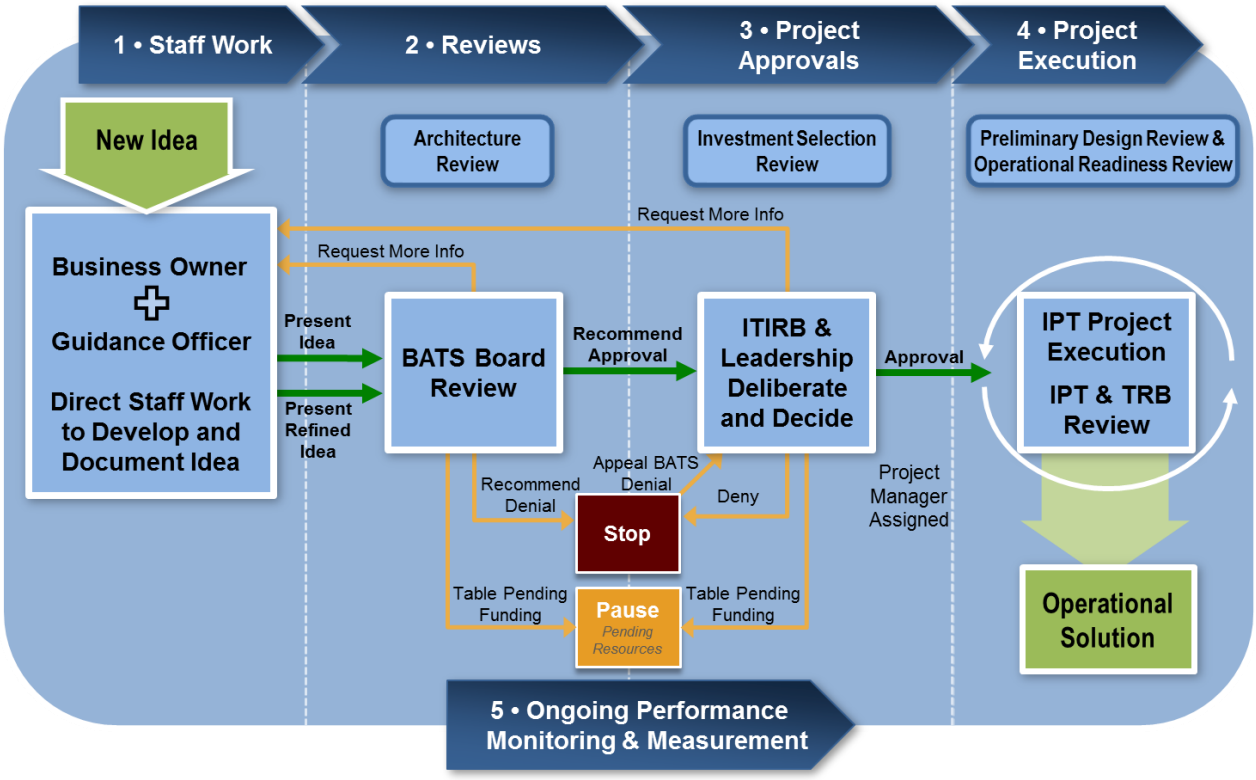


Figure 2: Expedited Life Cycle Process Flow

Figure 3: The Expedited Life Cycle Model shows how the XLC provides three tailored options for projects to adopt depending on the level of complexity of the project. For each Systems Development XLC Option, there are:

- **Governance Board Reviews**: These reviews are scheduled with the appropriate CMS governance body(s) and are conducted with all relevant stakeholders. There are three or more governance board reviews, depending on the complexity level of the project.
- **Integrated Project Team (IPT) /Independent Assessment Team (IAT) Reviews**: These reviews are conducted by the IPT/IAT with the relevant stakeholders. The IPT reviews are also guided by project complexity. The IPT may engage members of the governance boards for these reviews.

Each review provides the opportunity to assess project work to date, identify any potential issues, and ultimately approve the project to continue with the next phase of the life cycle. The decision is based on a review of the artifacts associated with each of the reviews. Chapter 2 provides a high level description of each of the tailored XLC options and associated reviews. Chapter 5 provides a detailed description of each of the XLC reviews and associated artifacts.

It is unlikely that any project will be required to produce every single artifact. *Table 4: CMS XLC Artifacts by Phase* details when the different artifacts should be started and completed. For those artifacts spanning multiple phases, it is expected that updates to the preliminary artifact will be delivered and reviewed at the applicable reviews.

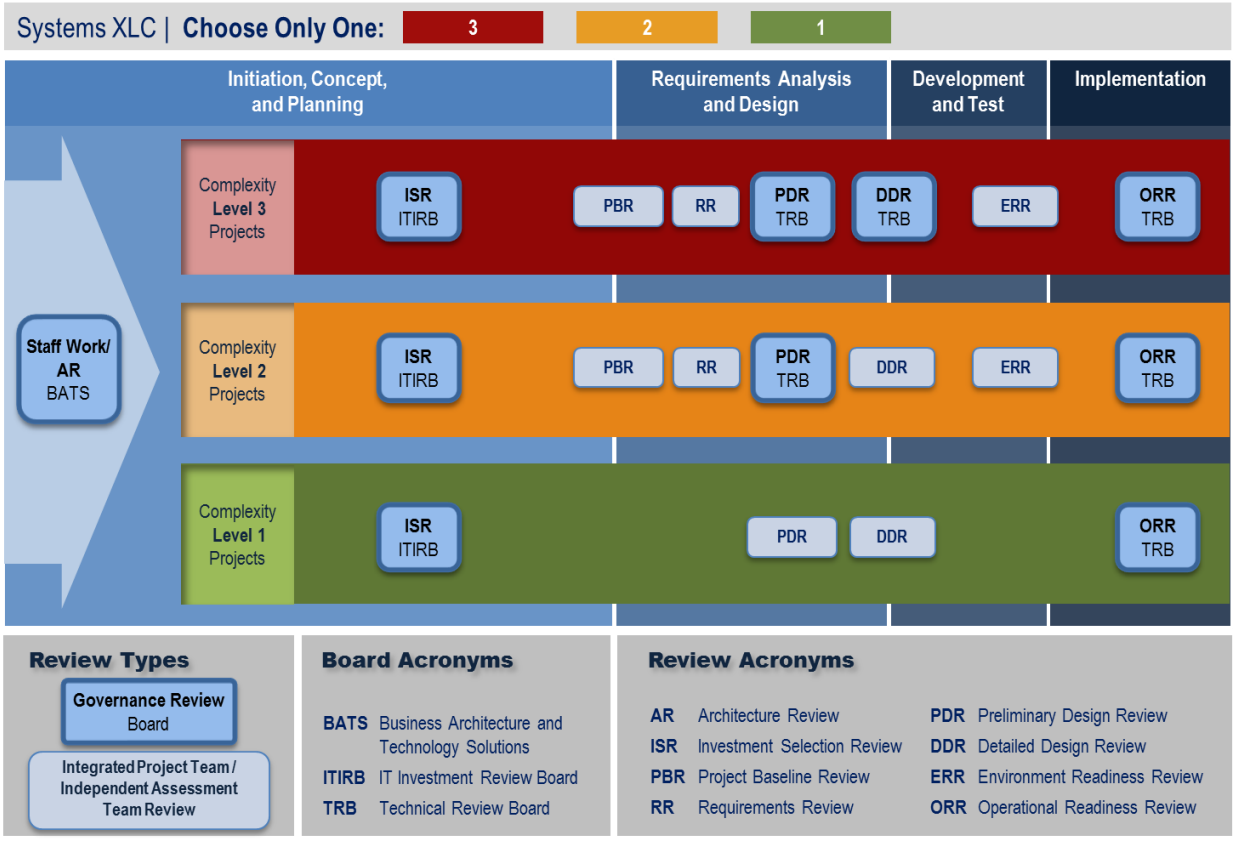


Figure 3: The Expedited Life Cycle Model

1.3 Project Process Agreement (PPA)

The PPA is a key artifact in the XLC that sets expectation and increases overall project predictability. It is a written agreement between the key stakeholders that establishes a common understanding regarding which reviews will be conducted for the project, which artifacts are appropriate, and which tests are necessary based on the project's complexity level as determined by the Business Owner.

Each PPA contains a complexity worksheet, a list of artifacts, a list of reviews, a list of tests, and a signature sheet. An Excel-based tool is used to create the PPA and as each tab is completed, the signature sheet is populated with the selected items from each list. The PPA is approved by the Division of IT Governance (DITG) before it is baselined and presented at Investment Selection Review (ISR). DITG assigned Project Consultants can approve a PPA, or a draft of the PPA can be sent to the DITG mailbox, IT_Governance@CMS.hhs.gov, for review and approval.

The approved PPA can be provided to a contractor as part of a request for proposal. As a proposal input, the PPA helps scope the expected work and timeframe for completion.

The PPA is a prediction based on the best knowledge available at the time. As a project's design and implementation details are discovered and refined, the project team may learn that the PPA needs to be updated. For example, a COTS product may not perform as expected and unforeseen development may be required. This unanticipated development may change a project's complexity level and as a result, the number and type of reviews, associated artifacts, and tests have to be updated.

Sometimes these changes are identified at an early Governance review. Whenever such changes are identified, the PPA should be updated to reflect the implications of a more complete understanding of the solution. Changing the PPA baseline ensures that cost, schedule, technical, and risk baselines are synchronously updated. Updated signatures show that the key stakeholders understand the implications of this new information and that they agree with the revised and newly baselined plan.

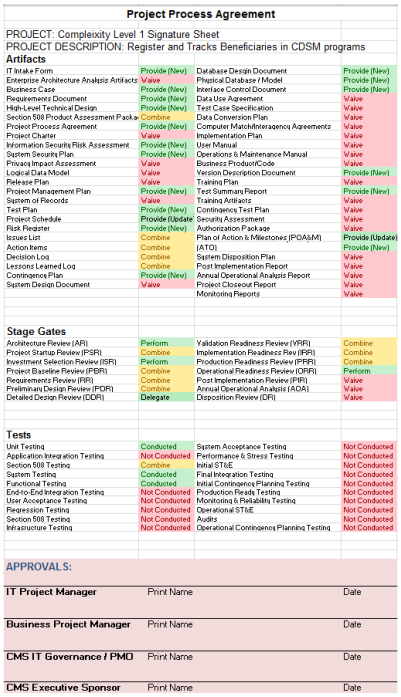
The Excel-based PPA uses color codes to provide a visual summary of expected work.

Color Codes:

- For each project, relevant artifacts, reviews, and tests to be performed are highlighted in green.
- When the decision is made for a project to combine artifacts, reviews, or tests, they are highlighted in yellow.
- Items that are waived for a project because they are not applicable to a solution are highlighted in pink.

Samples of complexity level 1, 2, and 3 signature sheets are shown in *Figure 4: Complexity Level 1, 2, and 3 Project Process Agreement Samples*. Comparing the samples shows how relevant artifacts, reviews, and tests could be agreed upon by the stakeholders based on the XLC Option. These options and the complexity levels are described in detail in the Section 2.

Complexity Level 1



Project Process Agreement

PROJECT: Complexity Level 1 Signature Sheet

PROJECT DESCRIPTION: Register and Tracks Beneficiaries in CDSM programs

Artifacts

IT Intake Form	Provide (New)	Database Design Document	Provide (New)
Enterprise Architecture Analysis Artifacts	Waive	Physical Database / Model	Provide (New)
Business Case	Provide (New)	Interface Control Document	Provide (New)
Requirements Document	Provide (New)	Data Use Agreement	Waive
High-Level Technical Design	Provide (New)	Test Case Specification	Waive
Section 508 Product Assessment Packag	Combine	Data Conversion Plan	Waive
Project Process Agreement	Provide (New)	Computer Matchinteragency Agreements	Waive
Project Charter	Waive	Implementation Plan	Waive
Information Security Risk Assessment	Provide (New)	User Manual	Waive
System Security Plan	Provide (New)	Operations & Maintenance Manual	Waive
Privacy Impact Assessment	Waive	Business Product/Code	Waive
Logical Data Model	Waive	Version Description Document	Provide (New)
Release Plan	Waive	Training Plan	Waive
Project Management Plan	Provide (New)	Test Summary Report	Provide (New)
System of Records	Waive	Training Artifacts	Waive
Test Plan	Provide (New)	Contingency Test Plan	Waive
Project Schedule	Provide (Update	Security Assessment	Waive
Risk Register	Provide (New)	Authorization Package	Waive
Issues List	Combine	Plan of Action & Milestones (POA&M)	Provide (Update)
Action Items	Combine	(ATO)	Provide (New)
Decision Log	Combine	System Disposition Plan	Waive
Lessons Learned Log	Combine	Post Implementation Report	Waive
Contingency Plan	Provide (New)	Annual Operational Analysis Report	Waive
System Design Document	Waive	Project Closeout Report	Waive
		Monitoring Reports	Waive

Stage Gates

Architecture Review (AR)	Perform	Validation Readiness Review (VRR)	Combine
Project Startup Review (PSR)	Combine	Implementation Readiness Rev (IRR)	Combine
Investment Selection Review (ISR)	Perform	Production Readiness Review (PRR)	Combine
Project Baseline Review (PBR)	Combine	Operational Readiness Review (ORR)	Perform
Requirements Review (RR)	Combine	Post Implementation Review (PIR)	Waive
Preliminary Design Review (PDR)	Combine	Annual Operational Analysis (AOA)	Waive
Detailed Design Review (DDR)	Delegate	Disposition Review (DR)	Waive

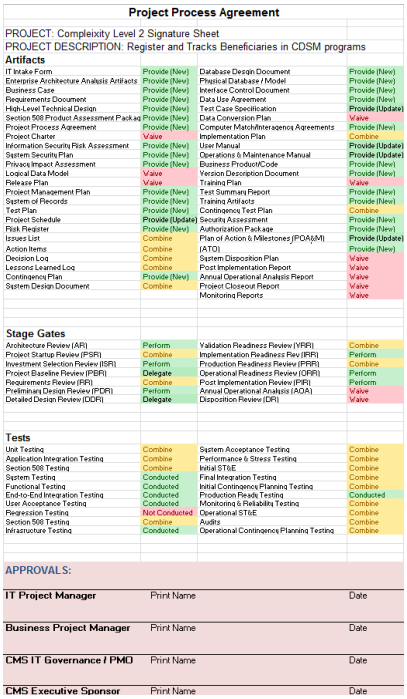
Tests

Unit Testing	Conducted	System Acceptance Testing	Not Conducted
Application Integration Testing	Not Conducted	Performance & Stress Testing	Not Conducted
Section 508 Testing	Combine	Initial ST&E	Not Conducted
System Testing	Conducted	Final Integration Testing	Not Conducted
Functional Testing	Conducted	Initial Contingency Planning Testing	Not Conducted
End-to-End Integration Testing	Not Conducted	Production Ready Testing	Not Conducted
User Acceptance Testing	Not Conducted	Monitoring & Reliability Testing	Not Conducted
Regression Testing	Not Conducted	Operational ST&E	Not Conducted
Section 508 Testing	Not Conducted	Audits	Not Conducted
Infrastructure Testing	Not Conducted	Operational Contingency Planning Testing	Not Conducted

APPROVALS:

IT Project Manager	Print Name	Date
Business Project Manager	Print Name	Date
CMS IT Governance / PMO	Print Name	Date
CMS Executive Sponsor	Print Name	Date

Complexity Level 2



Project Process Agreement

PROJECT: Complexity Level 2 Signature Sheet

PROJECT DESCRIPTION: Register and Tracks Beneficiaries in CDSM programs

Artifacts

IT Intake Form	Provide (New)	Database Design Document	Provide (New)
Enterprise Architecture Analysis Artifacts	Provide (New)	Physical Database / Model	Provide (New)
Business Case	Provide (New)	Interface Control Document	Provide (New)
Requirements Document	Provide (New)	Data Use Agreement	Provide (New)
High-Level Technical Design	Provide (New)	Test Case Specification	Provide (Update)
Section 508 Product Assessment Packag	Provide (New)	Data Conversion Plan	Waive
Project Process Agreement	Provide (New)	Computer Matchinteragency Agreements	Provide (New)
Project Charter	Waive	Implementation Plan	Combine
Information Security Risk Assessment	Provide (New)	User Manual	Provide (Update)
System Security Plan	Provide (New)	Operations & Maintenance Manual	Provide (Update)
Privacy Impact Assessment	Provide (New)	Business Product/Code	Provide (New)
Logical Data Model	Waive	Version Description Document	Provide (New)
Release Plan	Waive	Training Plan	Waive
Project Management Plan	Provide (New)	Test Summary Report	Provide (New)
System of Records	Provide (New)	Training Artifacts	Provide (New)
Test Plan	Provide (New)	Contingency Test Plan	Combine
Project Schedule	Provide (Update)	Security Assessment	Provide (New)
Risk Register	Provide (New)	Authorization Package	Provide (New)
Issues List	Combine	Plan of Action & Milestones (POA&M)	Provide (Update)
Action Items	Combine	(ATO)	Provide (New)
Decision Log	Combine	System Disposition Plan	Waive
Lessons Learned Log	Combine	Post Implementation Report	Waive
Contingency Plan	Provide (New)	Annual Operational Analysis Report	Waive
System Design Document	Combine	Project Closeout Report	Waive
		Monitoring Reports	Waive

Stage Gates

Architecture Review (AR)	Perform	Validation Readiness Review (VRR)	Combine
Project Startup Review (PSR)	Combine	Implementation Readiness Rev (IRR)	Perform
Investment Selection Review (ISR)	Perform	Production Readiness Review (PRR)	Combine
Project Baseline Review (PBR)	Delegate	Operational Readiness Review (ORR)	Perform
Requirements Review (RR)	Combine	Post Implementation Review (PIR)	Perform
Preliminary Design Review (PDR)	Perform	Annual Operational Analysis (AOA)	Waive
Detailed Design Review (DDR)	Delegate	Disposition Review (DR)	Waive

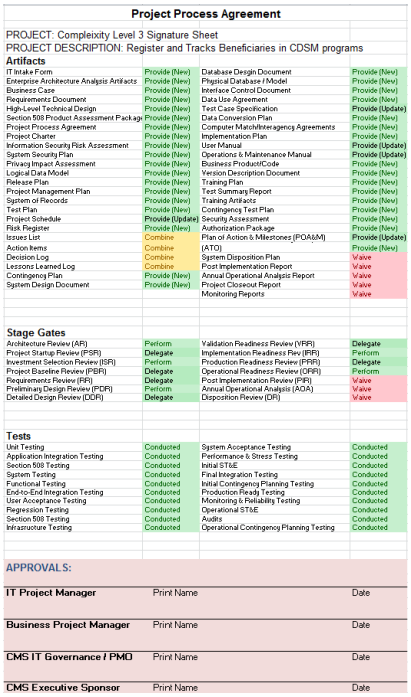
Tests

Unit Testing	Combine	System Acceptance Testing	Combine
Application Integration Testing	Combine	Performance & Stress Testing	Combine
Section 508 Testing	Combine	Initial ST&E	Combine
System Testing	Conducted	Final Integration Testing	Combine
Functional Testing	Conducted	Initial Contingency Planning Testing	Combine
End-to-End Integration Testing	Conducted	Production Ready Testing	Conducted
User Acceptance Testing	Conducted	Monitoring & Reliability Testing	Combine
Regression Testing	Not Conducted	Operational ST&E	Combine
Section 508 Testing	Combine	Audits	Combine
Infrastructure Testing	Conducted	Operational Contingency Planning Testing	Combine

APPROVALS:

IT Project Manager	Print Name	Date
Business Project Manager	Print Name	Date
CMS IT Governance / PMO	Print Name	Date
CMS Executive Sponsor	Print Name	Date

Complexity Level 3



Project Process Agreement

PROJECT: Complexity Level 3 Signature Sheet

PROJECT DESCRIPTION: Register and Tracks Beneficiaries in CDSM programs

Artifacts

IT Intake Form	Provide (New)	Database Design Document	Provide (New)
Enterprise Architecture Analysis Artifacts	Provide (New)	Physical Database / Model	Provide (New)
Business Case	Provide (New)	Interface Control Document	Provide (New)
Requirements Document	Provide (New)	Data Use Agreement	Provide (New)
High-Level Technical Design	Provide (New)	Test Case Specification	Provide (Update)
Section 508 Product Assessment Packag	Provide (New)	Data Conversion Plan	Provide (New)
Project Process Agreement	Provide (New)	Computer Matchinteragency Agreements	Provide (New)
Project Charter	Provide (New)	Implementation Plan	Provide (New)
Information Security Risk Assessment	Provide (New)	User Manual	Provide (Update)
System Security Plan	Provide (New)	Operations & Maintenance Manual	Provide (Update)
Privacy Impact Assessment	Provide (New)	Business Product/Code	Provide (New)
Logical Data Model	Provide (New)	Version Description Document	Provide (New)
Release Plan	Provide (New)	Training Plan	Provide (New)
Project Management Plan	Provide (New)	Test Summary Report	Provide (New)
System of Records	Provide (New)	Training Artifacts	Provide (New)
Test Plan	Provide (New)	Contingency Test Plan	Provide (New)
Project Schedule	Provide (Update)	Security Assessment	Provide (New)
Risk Register	Provide (New)	Authorization Package	Provide (New)
Issues List	Combine	Plan of Action & Milestones (POA&M)	Provide (Update)
Action Items	Combine	(ATO)	Provide (New)
Decision Log	Combine	System Disposition Plan	Waive
Lessons Learned Log	Combine	Post Implementation Report	Waive
Contingency Plan	Provide (New)	Annual Operational Analysis Report	Waive
System Design Document	Provide (New)	Project Closeout Report	Waive
		Monitoring Reports	Waive

Stage Gates

Architecture Review (AR)	Perform	Validation Readiness Review (VRR)	Delegate
Project Startup Review (PSR)	Delegate	Implementation Readiness Rev (IRR)	Perform
Investment Selection Review (ISR)	Perform	Production Readiness Review (PRR)	Delegate
Project Baseline Review (PBR)	Delegate	Operational Readiness Review (ORR)	Perform
Requirements Review (RR)	Delegate	Post Implementation Review (PIR)	Waive
Preliminary Design Review (PDR)	Perform	Annual Operational Analysis (AOA)	Waive
Detailed Design Review (DDR)	Delegate	Disposition Review (DR)	Waive

Tests

Unit Testing	Conducted	System Acceptance Testing	Conducted
Application Integration Testing	Conducted	Performance & Stress Testing	Conducted
Section 508 Testing	Conducted	Initial ST&E	Conducted
System Testing	Conducted	Final Integration Testing	Conducted
Functional Testing	Conducted	Initial Contingency Planning Testing	Conducted
End-to-End Integration Testing	Conducted	Production Ready Testing	Conducted
User Acceptance Testing	Conducted	Monitoring & Reliability Testing	Conducted
Regression Testing	Conducted	Operational ST&E	Conducted
Section 508 Testing	Conducted	Audits	Conducted
Infrastructure Testing	Conducted	Operational Contingency Planning Testing	Conducted

APPROVALS:

IT Project Manager	Print Name	Date
Business Project Manager	Print Name	Date
CMS IT Governance / PMO	Print Name	Date
CMS Executive Sponsor	Print Name	Date

Figure 4: Complexity Level 1, 2, and 3 Project Process Agreement Samples

1.4 Starting an XLC Project

Figure 5: Starting an XLC Project depicts the three step process to getting an IT project approved.

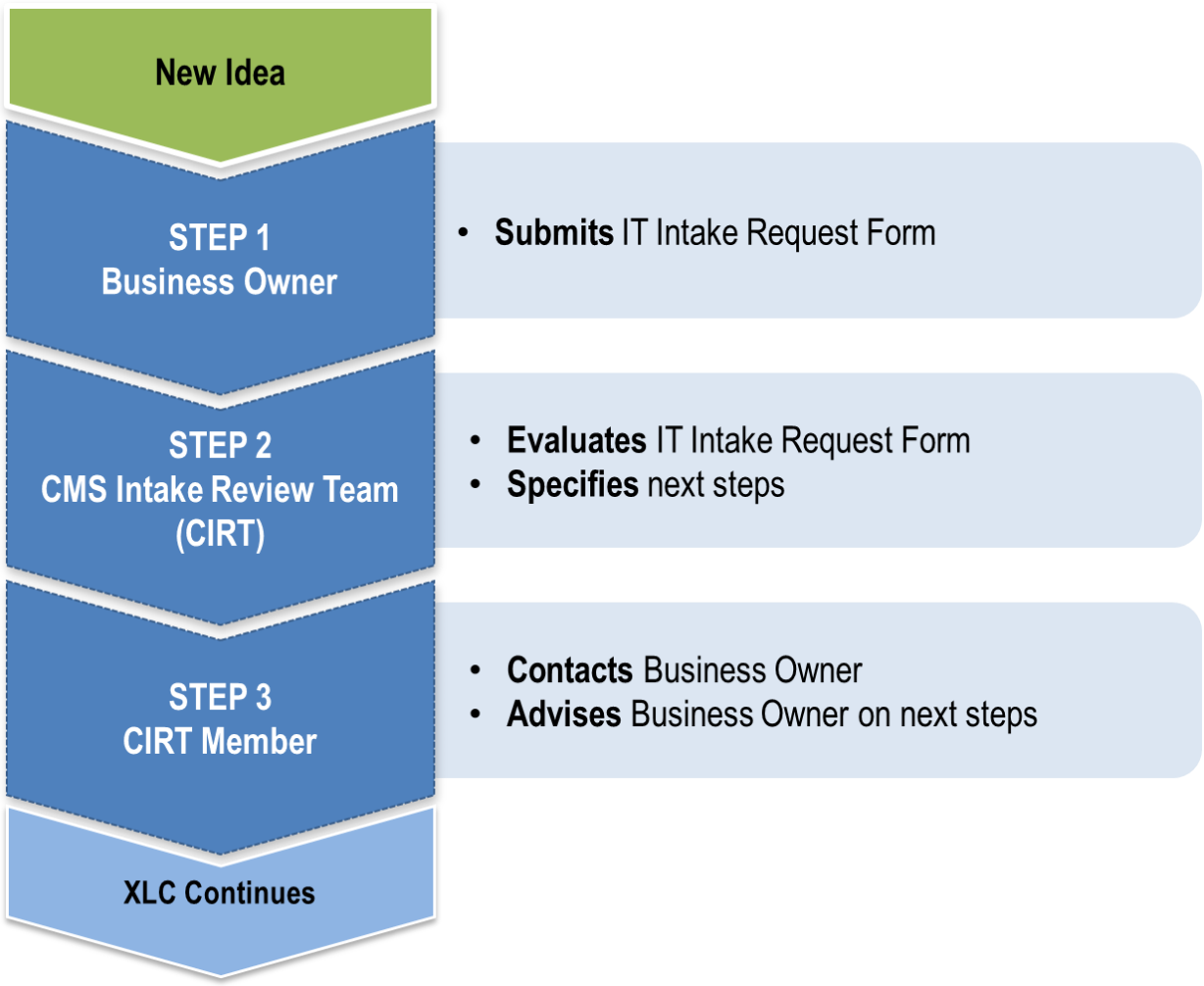


Figure 5: Starting an XLC Project

- **Step 1:** Starting a project begins with an idea. If the idea is likely to involve information technology the business owner drafts and submits an IT Intake Request Form. The IT Intake Request Form is short (roughly a page), can be in a preliminary form and notifies OIS that a Business Owner (BO) may need some help.
- **Step 2:** The IT Intake Request Form is evaluated by the CIO's Intake Review Team (CIRT). The CIRT specifies next steps and recommends assignment of a CIRT Member to help the BO navigate the startup process.
- **Step 3:** The assigned CIRT Member contacts and works with the BO to initiate the project. Tasks performed may include assessment of project complexity and risk, development of the Project Process Agreement, and development of Enterprise Architecture Analysis artifacts as needed.

2. System Development XLC Options

The XLC provides business owners and IT project managers three tailored XLC oversight levels to manage a project. Each project evaluates the risks of the development effort, and assesses its project complexity. Determining complexity level guides a project in the identification of:

1. Reviews needed and those that may be combined or waived
2. Artifacts needed and those that may be combined or waived
3. Tests needed and those that may be combined or not conducted

These results help you understand the scope of work required for a project and support the development of a project plan including schedule and rough order of magnitude (ROM) costs.

Determining complexity requires some insight into the system development process. As a project starts the CIRT assesses the project's experience with the XLC. As needed, the CIRT identifies resources, such as a Guidance Officer (GO), to provide advice and process guidance. The GO has experience with system development and applies that domain knowledge when working closely with the business owner to jointly assess a project's complexity. Part of this assessment may involve analysis and terminology that is unique to the IT domain. The GO works with the business owner to leverage the proven advantages of applying the Systems Engineering standard covering processes and life cycle to ensure efficient, successful delivery of desired capability.

Project Complexity Categories

CMS has defined three (3) Project Complexity Levels: Complexity Level 1, Complexity Level 2 and Complexity Level 3.

Complexity Level 3 Projects: A complexity level 3 project is defined as either of the following:

- a project that requires a new, one-of-a-kind design and development effort to support enterprise, center or department specific IT solution
- a project for a system that has or will have significant security and risk implications.

This effort could be an initial, major development, modernization, or enhancement effort and requires project teams to document detailed requirements, design, and technical solution specifications. Examples include:

- Implementing a Commercial-off-the-Shelf (COTS) software and / or hardware and integrating within existing systems / environment.
- Developing new code on a new or existing system.
- Creating a new shared service.

Due to the unique challenges in delivering a complexity level 3 solution, more stage gate reviews or checkpoints are needed to ensure the project remains on track.

Complexity Level 2 Projects: A complexity level 2 project is defined as either of the following:

- a project that requires an isolated change with minimal impact to existing systems / environments and does not significantly affect the state of any security controls or requirements

- a project that requires minor changes to one or more systems / environments that are incremental to the initial build with limited impact and do not significantly affect the state of any security controls or requirements.

Examples include:

- Implementing COTS software and / or hardware with no integration required.
- Making minor changes to hardware capacity, adding storage, etc.

There is less risk, and in some ways, less work required to deliver a complexity level 2 solution. Some oversight is still warranted at key decision points. Several stage gate reviews or checkpoints are needed but not as many as are needed to manage a complexity level 3 effort.

Complexity Level 1 Project: A complexity level 1 project is defined as a project that requires minor changes to existing services systems, and / or environments and does not affect the state of any security controls or requirements. Examples include:

- Using existing shared services.
- Implementing incremental data and configuration changes (providing information is not repurposed and no security related configuration parameters are changed).

The least risky solutions usually involve repackaging proven capability in straightforward proven ways. Since existing components have already navigated the XLC, relatively few stage gate reviews or checkpoints are needed to keep the project on track. Note: using existing components that are approved for a lower security level than that required for the system is not permitted.

Completing the goals of the project complexity assessment

Completing a project complexity analysis leverages expertise from both the business owner and the GO. It facilitates early planning by right sizing the life cycle to meet the project's unique needs. This ensures sufficient reviews to manage known risk and identifies needed artifacts to communicate design and development decisions among stakeholders. The process encourages reuse of existing shared services because they are less risky, less costly and less time consuming to implement. Using consistent complexity analysis allows for improvements to the process enabling future projects to benefit from applying lessons learned.

Table 1: Table for Rating Project Characteristics to Determine Overall Project Complexity provides the table used for rating project characteristics evaluated in the determination of project complexity. Each project characteristic is assigned a complexity rating based on the descriptions provided. Once this table is completed, the appropriate complexity level can be determined using the decision tree shown in *Table 2: Decision Tree for Overall Project Complexity Determination*. These tables are combined into a worksheet on the second tab of the PPA.

Working with the IPT and the GO, the business owner ensures the specified stage gate reviews for the project's complexity swim lane are performed as shown in *Figure 3: The Expedited Life Cycle Model*. The business owner and GO may add any reviews to this minimum set that are deemed necessary to manage risk to the project's success. This includes any project unique reviews. The risks of not performing a particular stage gate review are provided in Section 3.

The business owner, working with the GO, can identify the needed artifacts using the Excel-based PPA. The PPA includes a description of each artifact. These descriptions used in conjunction with the project characteristic complexity determination from above enable the business owner and GO to make an informed decision about the need for an artifact. For

example, if the project involves high data complexity it will probably need a logical data model, a database design document, a physical data model, as well as appropriate test plans and test cases.

Project Characteristic	Complexity Level	Rating Guidance	Your Project's Level?
Shared Services Implications	3	Creating new shared service(s)	**1, 2, or 3 (select 1)**
	2	Modifying existing shared service(s)	
	1	Using existing shared service(s) as is	
Program / Business Process Profile *(with Design / Development Implications)*	3	New business process model, or process that may lead to significant cross program coordination and/or significant coordination with external business partners and/or developing new code on a new or existing system	**1, 2, or 3 (select 1)**
	2	Some new requirements and information flows, minor changes to code in an existing system	
	1	Requirements and information flows are similar to current programs, no new code	
Privacy Implications	3	Any Personally Identifiable Information (PII), Personal health Information (PHI), or Federal Taxpayer Information (FTI) data identified that is used, accessed, stored, or transmitted by the system	**1, 2, or 3 (select 1)**
	2	N/A – Privacy is either Complexity Level 1 or 3	
	1	No PII, PHI, or FTI data	
Security Implications *(based on Information Type[1] processed, accessed, stored, or transmitted)*	3	▪ Investigation, intelligence-related, and security information ▪ Mission-critical information	**1, 2, or 3 (select 1)**
	2	▪ Information about persons ▪ Financial, budgetary, commercial, proprietary or trade secret information ▪ Internal administration ▪ Other Federal agency information ▪ New technology or controlled scientific information ▪ Operational information ▪ System configuration management information	
	1	▪ Other sensitive information ▪ Public information	
Data Complexity *(ties to data's financial implications)*	3	▪ Completely new data for the agency ▪ Data is serving as a corporate asset	**1, 2, or 3 (select 1)**
	2	Some new data is introduced	
	1	▪ Data is similar to existing agency systems ▪ Data scope focused on one service/system/domain	
Interface	3	▪ Interaction with non-Federal agencies in business rules	**1, 2, or 3**

[1] Information Type definitions are from *CMS System Security and e-Authentication Assurance Levels by Information Type* available at https://www.cms.gov/informationsecurity/downloads/ssl.pdf

Complexity		▪ Data access via internet ▪ Extensive interaction with other systems, especially external organizations and agencies ▪ Shared service or system access via internet ▪ Extensive interactions with other systems, databases, or new / updated COTS products	**(select 1)**
	2	▪ Interaction with other Federal agencies in business rules ▪ Data access via extranet ▪ Moderate interaction with other systems, especially external organizations and agencies ▪ Shared service or system access via extranet ▪ Moderated interaction with other systems, databases, or new / updated COTS products	
	1	▪ No interaction w/ external organization in business rules ▪ Data access via internal HHS network access only ▪ No interaction with other systems, especially external organizations and agencies ▪ Shared service or system access via internal HHS network access only ▪ No interaction with other systems, databases, or new / updated COTS products	

Table 1: Table for Rating Project Characteristics to Determine Overall Project Complexity

Determining ROM Cost can be accomplished by preparing a Basis of Estimate (BOE). The BOE should be based on comparison of the proposed project to other similar completed projects. The BOE would note similarities and differences between completed projects and the proposed project and include appropriate adjustments to the costs for those completed projects. The Division of IT Investment Management manages a Cost Estimation Tool that provides a more rigorous cost estimation capability.

	Results from the Project Characteristic Complexity Rating Worksheet *(figure 6)*		**Project Complexity Level**
If your project has…	More than one complexity level 3 project characteristic	**…then your project is complexity level**:	**3**
	Only one complexity level 3 project characteristic -or- No complexity level 3 project characteristics and more than one complexity level 2 project characteristic.		**2**
	No complexity level 3 project characteristics and only one complexity level 2 project characteristic -or- All complexity level 1 project characteristics.		**1**

Table 2: Decision Tree for Overall Project Complexity Determination

3. XLC Risk Considerations

When planning project activities and life cycle processes, it is important to consider the risk of waiving a review and plan appropriate mitigation strategies to ensure project success. The following table provides the potential risks of waiving individual reviews.

Review	Risk of Waiving Review
Architecture Review (AR)	• Causes high-level technical design to begin with incomplete understanding of desired solution and relationships to existing systems. • Redundancy risk, missed leverage opportunity, and potential conflicts with CMS IT strategy.
Investment Selection Review (ISR)	• Project is added to CMS investment portfolio and funds are committed without an assessment of soundness, viability, and worthiness.
Project Baseline Review (PBR)	• Work begins without a baseline plan complicating the ability to provide direction and track progress against integrated cost, schedule, and technical baselines.
Requirements Review (RR)	• Design begins without requirement reconciliation with business needs. • Any unexpected issues that drive cost and schedule variances are likely to exasperate later.
Preliminary Design Review (PDR)	• Detailed design begins without high-level application architectural review to validate software and external interfaces or verification that design satisfies requirements. • Any unexpected high level design issues that drive cost and schedule variances are likely to drive further variances later in the life cycle.
Detailed Design Review (DDR)	• Development begins without assurance that design meets stated business needs. Solutions developed from incomplete or unworkable design are likely to have performance gaps causing time and money to fix. • Any unexpected detailed design issues that drive cost and schedule variances are likely to drive further variances in development, integration, and verification.
Environment Readiness Review (ERR) 1: **Validation Readiness Review (VRR)**	• System/ application testing commences without a formal hand off from development to test. Causes a lack of controlled baseline, clear statement of functionality status, formal turnover of any required work-around, or initiation of formal configuration management procedures. • Leads to an uncontrolled baseline with errors and fixes. • Any unexpected development issues that drive cost and schedule variances often drive further variances in integration, and verification.
ERR 2: **Implementation Readiness Review (IRR)**	• The system/ application will move to an implementation (production-like) environment without a formal handoff from configuration management to implementation or rules for communication. The handoff usually includes verification that it meets requirements, statement of what function is / is not working, and formal turnover of any required work-around. • Any unexpected integration and verification issues that drive cost and schedule variances may drive further variances in the next levels of testing.
ERR 3: **Production Readiness Review (PRR)**	• The system/ application moves to the production environment without a formal handoff from implementation or rules for communication. Handoff usually includes verification that it meets performance requirements, statement of what function is and is not working, formal turnover of any required work-around, and reconciliation with operations and maintenance procedures. • Any unexpected integration and verification issues that drive cost and schedule variances may drive further variances in later testing as well as production.
Operational Readiness Review (ORR)	• The system/ application is put into production without verification that it meets performance requirements and that operation and maintenance procedures ensure prompt system recovery without loss of data. • Security is a significant component of ORR must be satisfied for the CIO to grant Authority to Operate. This review is a governance level review.

Table 3: Risk of Waiving a Review

4. XLC Roles

Given the risks associated with waiving a review, the XLC recommends the use of the Integrated Project Team (IPT) and / or an Independent Assessment Team (IAT) for delegated reviews. The XLC also recommends using the Technical Review Board (TRB) for consultations. When using contractors or third parties, the XLC recommends consideration of vender certifications (at least Capability Maturity Model Integration level 3, ISO 9000) before delegating any production of artifacts or other aspects of the CMS XLC process.

Role of Business Architecture and Technology Solutions (BATS) Board

The Business Architecture and Technology Solutions (BATS) Board conducts the Architecture Review. The BATS Board may conduct ISRs when delegated by the ITIRB. The BATS Board may delegate the Architecture Review to the TRB.

Role of Business Owner (BO)

The executive in charge of the organization, who serves as the primary customer and advocate for an IT project. The Business Owner is responsible for identifying the business needs and performance measures to be satisfied by an IT project; providing funding for the IT project; establishing and approving changes to cost, schedule and performance goals; and validating that the IT project initially meets business requirements and continues to meet business requirements.

Role of CMS Intake Review Team (CIRT)

The CMS Intake Review Team (CIRT) initially assesses the IT intake form. It ensures known architecture issues (analysis, integration, logical/physical models, and current and future state analysis) are addressed in the staff work leading to an Architecture Review. It also provides transition guidance related to business, data, applications, and technology to ensure appropriate strategic and tactical issues are considered when formulating an IT project.

Role of Contractors / Third Parties

For reviews, contractors / third parties may be used for development of review artifacts and other materials required. The XLC recommends the use of certified vendors with at least Capability Maturity Model Integration level 3 assessment and ISO 9000 certification. Other CMS certification may be relevant depending on the project and content.

Role of Division of Information Technology Governance (DITG)

The DITG is the CMS organizational unit responsible for IT governance. The DITG facilitates the intake of IT project requests, advises business owners and technical staff on navigation of the XLC, and approves Project Process Agreements.

Role of the Environment Owner

The Environment Owner provides development, validation, and implementation environments for new applications prior to implementation in the data center.

Role of Executive Steering Committee (ESC)

The ESC serves as management authority providing senior management leadership for the successful and timely completion of IT projects to meet the business needs. The ESC provides management oversight and guidance to the Business Owner and/or Contracting Officer's Representative (COR) and makes final decisions on the priority, risk, and potential impact of changes to the project objectives, operations, quality, schedule, performance, budget and other resources related to the IT project. The ESCs monitor the progress and status of the IT projects and adjust, if necessary, both project and business needs and priorities to ensure success of the IT projects and Agency mission.

Role of Guidance Officer (GO)

The Guidance Officer (GO) was conceived as a role that applies domain knowledge to jointly assess a project's complexity with the business owner. The GO's responsibilities include working with the Business Owner to jointly: develop required documents, complete all BATS reviews, ensure shared services alignment, prepare the business case, develop a benefits realization plan, and prepare for the project approval process. The model for implementing GOs has not been finalized. Identifying a means to provide OIS guidance is part of the intake process as your project's IT Intake Request Form is evaluated. Currently possible sources of guidance depend on the type of effort. Enterprise Systems Development (ESD) contracts have a Program Manager from OIS. Non-ESD efforts may be assigned a Project Consultant if necessary.

Role of Independent Assessment Team (IAT)

An Independent Assessment Team (IAT) is a group of experienced and skilled practitioners who are free of biases, conflicts of interests, and political influences. IATs team's responsibilities could include conducting delegated reviews. IATs keep the project team and stakeholders informed of the true status of the project by assessing maturity of business and technical processes; determining requirements adherence, changes, and impacts; evaluating technology and other risks; and measuring progress towards cost, schedule, and performance goals. The XLC recommends the use of an IAT team for delegated reviews to ensure an outsider and expert perspective in lieu of governance reviews.

Role of Information Technology Investment Review Board (ITIRB)

The Information Technology Investment Review Board is the executive review and decision-making body for CMS IT management. It reviews and approves IT initiatives and expenditures. One role of the ITIRB in the XLC is to conduct the Investment Selection Review.

Role of Integrated Project Team (IPT)

The Integrated Project Teams (IPTs) are cross-functional or multidisciplinary groups of individuals that are organized and collectively responsible for the specific purpose of delivering a product to an internal or external customer. IPTs are typically chaired by the Program or Project Manager and may include an IT project manager and a business project manager. The

XLC recommends that IPT provide full range of IT support: requirements, design, development, data, infrastructure, testing, operations, and a system integrator if needed. Critical Partners (Subject Matter Experts) and business owner representatives assist the Project Manager with planning and execution of the project, and may participate in delegated ILC reviews such as the Project Baseline Review (PBR). These experts include: EA, CPIC, budget, acquisition, systems engineers, business owners, security, and privacy representatives.

Role of the Project Consultant

The main responsibility of the Project Consultant is to assist Business Owners in navigating the XLC.

Role of Technical Review Board (TRB)

The Technical Review Board is involved in the XLC governance reviews. If scheduling a particular review may cause delay, the project may choose to continue progress pending feedback from the review. One option for delegated reviews is to use a "TRB consult" when and as often as needed to benefit from their experience and expertise without causing a delay in project progress. In the absence of formal reviews, the TRB consultation will provide projects with the ability to gain a broader perspective (including insight and linkages with other similar projects, where appropriate) as well as ensure alignment with the enterprise architecture.

5. The XLC Phases, Reviews, and Artifacts

The project's complexity will be used to establish a Project Process Agreement which specifies the artifacts a project will develop, as well as the reviews and tests a project will conduct. It is unlikely that any single project will do all the artifacts, reviews, and tests. The life cycle of possible artifacts is mapped to the XLC phases and associated stage gate reviews in Figure 9. For artifacts spanning phases, it is expected that updates to the artifact (usually increased detail reflecting work accomplished in the phase) will be available for review. Artifacts evolve in maturity through the XLC:

- **Preliminary** – the first instance of an artifact that contributes to a stage gate review. Detailed expectations are provided in the various reviews' templates.
- **Interim** – a "point in time" snapshot of an artifact that contributes to a stage gate review. This updated snapshot should represent progress from the last time the artifact was reviewed. Detailed expectations are provided in the various review's templates.
- **Baseline** – a version of the artifact that is under initial configuration management control. It is possible but usually difficult to change a baselined artifact. Such a change requires a change request which ensures implications to cost, schedule, and technical baselines are addressed. The expectation is that all sections of the artifact have been completed, reviewed and approved in order to declare a baseline for the artifact.
- **Final -** a baseline version of the artifact that is deemed complete and cannot be changed in later XLC phases. It is deemed unchangeable for a particular release of a system. The expectation is that all sections of the artifact have been completed, reviewed and approved. A Final version of an artifact is used for hand off to Operations and Maintenance.
- **Updated Yearly** – Several security artifacts are updated on a yearly basis in the Operations & Maintenance phase.

XLC Artifacts and their definitions are provided below.

- **Action Items**: Records and manages assignments that generally result from meeting discussions.
- **Annual Operational Analysis Report**: Documents elements from the Capital Planning and Investment Control (CPIC) evaluation and results from monitoring the performance of the system/application during normal operations against original user requirements and any newly implemented requirements or changes. The document assists in the analysis of alternatives for deciding on new functional enhancements and/or modifications to the system/application, or the need to dispose of or replace the system/application altogether.
- **Authorization Package**: Demonstrates and to validates that appropriate security controls exist to safeguard the system.
- **Business Case**: Describes the basic aspects of the proposed IT project: why, what, when, and how.

PHASES	Initiation	Concept	Planning	Requirements Analysis	Design	Development	Testing	Implementation	Operations & Maintenance	
REVIEWS	*AR*	*ISR*	*PBR*	*RR*	*PDR-DDR*	*ERR1 (VRR)*	*ERR2 ERR3 (IRR, PRR)*	*ORR*	*PIR/ AOA*	*DR*
ARTIFACTS										
Project Process Agreement		**P/B**								
Project Charter		**P/F**								
Project Management Plan			**P/F**							
Project Schedule			**B**	**I**	**I**	**I**	**I**	**F**		
Risk Register			**P**	**I**	**I**	**I**	**I**	**F**		
Issues List			**P**	**I**	**I**	**I**	**I**	**F**		
Action Items			**P**	**I**	**I**	**I**	**I**	**F**		
Decision Log			**P**	**I**	**I**	**I**	**I**	**F**		
Lessons Learned Log			**P**	**I**	**I**	**I**	**I**	**F**		
Project Closeout Report									**P/F**	
Information Security Risk Assessment		**P**	**I**	**I**	**I**	**I**	**F**		**U**	
System Security Plan		**P**	**I**	**I**	**I**	**I**	**F**		**U**	
Privacy Impact Assessment		**P**	**I**	**I**	**I**	**I**	**F**		**U**	
Contingency Plan		**P**	**I**	**I**	**I**	**I**	**I**	**I**	**F**	
Contingency Plan Test							**P/F**		**U**	
Security Assessment							**P/F**		**U**	
Authorization Package							**P/F**		**U**	
Plan of Action & Milestones								**P/F**		
CMS CIO-Issued Authority to Operate								**P/F**		
Security Monitoring Reports									**P/F**	

Artifacts are completed per the Project Process Agreement

Project Management Artifacts

Security Artifacts

Systems Development Artifacts

B – Baseline
F – Final
I – Interim
P – Preliminary
U – Update Yearly

Reviews are conducted per the Project Process Agreement

AR – Architecture Review
ISR – Investment Selection Review
PBR – Project Baseline Review
RR – Requirements Review
PDR – Preliminary Design Review
DDR – Detail Design Review
ERR – Environment (Validation, Implementation, Production) Readiness Review
ORR – Operational Readiness Review

PHASES	Initiation	Concept	Planning	Requirements Analysis	Design	Development	Testing	Implementation	Operations & Maintenance	
REVIEWS	*AR*	*ISR*	*PBR*	*RR*	*PDR-DDR*	*ERR1 (VRR)*	*ERR2 ERR3 (IRR, PRR)*	*ORR*	*PIR AOA*	*DR*
ARTIFACTS										
IT Intake Request Form	P/F									
Enterprise Architecture Analysis Artifacts	P	I	F							
Business Case		P/F								
Requirements Document		P	I	B						
High-Level Technical Design		P/F								
Section 508 Assessment Package		P	I	I	I	I	I	F		
Logical Data Model			P	F						
Release Plan			P	I	F					
System of Records Notice				P	F					
Test Plan				P	I	B				
System Design Document					P/B					
Database Design Document					P	F				
Physical Database/Model					P/F					
Interface Control Document					P/B					
Data Use Agreement					P	I	I	F		
Test Case Specification					P	F				
Data Conversion Plan					P	F				
Computer Match Agreement/Interagency Agreement					P/F					
Implementation Plan					P	I	I	F		
User Manual					P	I	I	F		
Operations & Maintenance Manual					P	I	I	F		
Business Product/Code						P/B				
Version Description Document						P	B			
Training Plan						P/F				
Test Summary Report							P	F		
Training Artifacts							P	F		
System Disposition Plan									P/F	
Post Implementation Report									P/F	
Annual Operational Analysis Report									P/F	
Disposition Closeout Certificate										P/F

Artifacts are completed per the Project Process Agreement

Project Management Artifacts

Security Artifacts

Systems Development Artifacts

B – Baseline
F – Final
I – Interim
P – Preliminary
U – Update Yearly

Table 4: CMS XLC Artifacts by Phase

- **Business Product / Code**: Documents the implemented system (hardware, software, and trained personnel) that addresses a business need.
- **CMS CIO-Issued Authority to Operate (ATO)**: Provides CIO approval of System Certification and System Accreditation authorizing the system to become operational.
- **Computer Match Agreement (CMA) / Interagency Agreement (IA)**: Documents agreements permitting computerized comparison of systems of records which contain personally identifiable information.
- **Contingency Plan**: Describes the strategy for ensuring system recovery in accordance with stated recovery time and recovery point objectives.
- **Contingency Plan Test**: Documents planned tests of strategies, personnel, procedures, and resources that respond to a supported applications/system interruption.
- **Database Design Document**: Describes the design of a database and the software units used to access or manipulate the data.
- **Data Conversion Plan**: Describes the strategies involved in converting data from an existing system/application to another hardware and/or software environment.
- **Data Use Agreement**: Informs data users of confidentiality requirements and obtains their agreement to abide by these requirements.
- **Decision Log**: Documents the decisions made over the course of the project.
- **Enterprise Architecture Analysis**: Consists of models, diagrams, tables, and narrative, which show the proposed solution's integration into CMS operations from both a logical and technical perspective.
- **High Level Technical Design**: Documents conceptual functions and stakeholder interactions.
- **Implementation Plan**: Describes how the automated system/application or IT situation will be installed, deployed and transitioned into an operational system or situation.
- **Information Security Risk Assessment (ISRA)**: Contains a list of threats and vulnerabilities, an evaluation of current security controls, their resulting risk levels, and any recommended safeguards to reduce risk exposure.
- **Interface Control Document**: Describes the relationship between a source system and a target system. Required for review, normally not updated after originally baselined in Design Phase.
- **IT Intake Form**: Collects basic new project information from a Business Owner.
- **Issues List**: Keeps a record of all issues that occur during the life of a project.
- **Lessons Learned Log**: Identifies and records lessons learned and future recommendations.
- **Logical Data Model**: Represents CMS data within the scope of a system development project and shows the specific entities, attributes, and relationships involved in a business function's view of information.
- **Operations & Maintenance Manual**: Guides those who maintain, support and/or use the system in a day-to-day operations environment.
- **Plan of Action & Milestones (POA&M)**: Reports the status of known security weaknesses with associated Plan of Action and Milestones.
- **Physical Database / Model**: Represents CMS data within the scope of a system development project and shows the specific tables, columns, and constraints involved in a physical implementation's view of information.

- **Post Implementation Report**: Documents results from monitoring the performance of a system/application during normal operations against the original user requirements and any newly implemented requirements or changes.
- **Privacy Impact Assessment**: Ensures no collection, storage, access, use or dissemination of identifiable respondent information that is not both needed and permitted.
- **Project Charter**: Authorizes the existence of a project and provides the authority to proceed and apply organizational resources.
- **Project Closeout Report**: Assesses the project, ensures completion, and derives lessons learned and best practices to be applied to future projects.
- **Project Management Plan**: Provides detailed plans and schedule, processes, and procedures for managing and controlling the life cycle activities.
- **Project Process Agreement**: Authorizes and documents the justifications for using, not using, or combining specific reviews and the selection of specific work products.
- **Project Schedule**: Shows the Integrated Master Schedule which includes all activities required to complete a project and their interdependencies.
- **Release Plan**: Describes what portions of the system functionality will be implemented in which release and why.
- **Requirements Document**: Identifies the business and technical capabilities and constraints of the IT project.
- **Risk Register**: Captures the results of a qualitative and quantitative risk analysis and the results of planning for response.
- **Section 508 Assessment**: Provides information regarding compliance with required accessibility standards.
- **Security Assessment**: Describes the completed assessment phases following established assessment procedure and reporting procedures.
- **Security Monitoring Reports**: Describes the completed security assessments and documents results following established assessment procedure and reporting procedures.
- **System Design Document**: Documents both high-level system design and low-level detailed design specifications.
- **System Disposition Plan**: Documents how the various components of an automated system (software, data, hardware, communications, and documentation) are to be handled at the completion of operations to ensure proper disposition of all the system components and to avoid disruption of the individuals and/or other systems impacted by the disposition.
- **System of Records Notice (SORN)**: Informs the public of collection of information about its citizens from which data are retrieved by a unique identifier.
- **System Security Plan (SSP)**: Documents the system's security level and describes managerial, technical and operational security controls.
- **Test Case Specification**: Describes the purpose of a specific test, identifies the required inputs and expected results, provides step-by-step procedures for executing the test, and outlines the pass/fail criteria for determining acceptance.
- **Test Plan**: Describes the overall scope, technical and management approach, resources, and schedule for all intended test activities associated with validation testing.
- **Test Summary Report**: Summarizes test activities and results including any variances from expected behavior.

- **Training Artifacts**: Satisfies the training plan with required products which may include web-based instruction, instructor guides, student guides, exercise materials, and training records.
- **Training Plan**: Describes the overall goals, learning objectives, and activities that are to be performed to develop, conduct, control, and evaluate instruction.
- **User Manual**: Explains how a novice business user is to use the automated system or application from a business function perspective.
- **Version Description Document**: Identifies, tracks and controls versions of automated systems and/or applications to be released to the operational environment.

The following sections provide the definitions of each of the phases, and reviews in the XLC. Depending on the XLC option for complexity level 1, 2, or 3 projects, the reviews listed below may be governance or delegated.

5.1 XLC Phase – Initiation, Concept, and Planning

Overview: During the Initiation, Concept, and Planning Phase, the business owner of an IT solution identifies what the project is intended to do, and presents the plans for achieving the business goals and objectives. The activities of this phase include:

- Preparing an IT Intake Request Form
- Identify significant assumptions and constraints, and explore alternatives
- Identify project goals, objectives, risks, and clear and measurable success factors
- Develop an architectural framework and high-level content
- Formally approve the project based on evidence that the business needs will be met, and the solution will conform to the Technical Reference Architecture
- Analyze how the project will be managed, culminating in the Project Management Plan.

Outcomes: The outcomes of the Initiation, Concept, and Planning Phase include:

- Establish the project's feasibility, viability, and alignment with program objectives
- Identify project complexity level
- Approve all relevant artifacts
- Complete project planning artifacts, including refinement of Project Management Plan, project schedule, and Project Process Agreement baselines.

5.1.1 Architecture Review (AR)

Purpose: Determine whether the proposed project potentially duplicates, interferes, contradicts or can leverage another investment that already exists, is proposed, under development, or planned for near-term disposition. The business need is assessed to determine if it is sound and conforms to the CMS Enterprise Architecture.

Project Management Artifacts:

- N/A

Security Artifacts:

- N/A

Systems Development Artifacts:

- Enterprise Architecture Analysis Artifacts (Preliminary)
- IT Intake Form (Final)

5.1.2 Investment Selection Review (ISR)

Purpose: Determine if it is a sound, viable, and worthy of funding, support and inclusion in the organization's IT Investment Portfolio. The business need and objectives are reviewed to ensure the effort supports CMS' overall mission and objectives and will not comprise initiatives on the horizon. This is an outward focused review designed to ensure funding and approval to proceed from senior leadership.

Project Management Artifacts:

- Project Charter (Final)
- Project Process Agreement (Baseline)

Security Artifacts:

- Contingency Plan (Preliminary)
- Information Security Risk Assessment (ISRA) (Preliminary)
- Privacy Impact Assessment (Preliminary)
- System Security Plan (Preliminary)

Systems Development Artifacts:

- Business Case (Final)
- Enterprise Architecture Analysis Artifacts (Interim)
- High Level Technical Design (Preliminary)
- Section 508 Assessment (Preliminary)
- Requirements Document (Preliminary)

5.1.2.1 Project Baseline Review (PBR)

Purpose: Obtain management approval that the scope, cost and schedule that have been established for the project are adequately documented and that the project management strategy is appropriate for moving the project forward in the life cycle. The PBR includes review of the budget, risk, and user requirements for the investment; emphasis should be on the total cost of ownership and not just development or acquisition costs.

As part of the ongoing overall program risk management process, the following assessments of risk to each baseline should be completed and reported. *Table 5: Risks to Address at PBR* provides guidelines for initial qualitative assessment appropriate for PBR. These should be added to any other risks that have been identified and are being tracked by the project.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Preliminary)
- Project Management Plan (Final)

- Project Schedule (Baseline)
- Risk Register (Preliminary)

Security Artifacts:

- Contingency Plan (Interim)
- Information Security Risk Assessment (Interim)
- Privacy Impact Assessment (Interim)
- System Security Plan (Interim)

Systems Development Artifacts:

- Enterprise Architecture Analysis Artifacts (Final)
- Logical Data Model (Preliminary)
- Release Plan (Preliminary)
- Requirements Document (Interim)
- Section 508 Assessment (Interim)

Baseline	Qualitative Risk Assessment	Project Characteristic
Schedule	High	Schedule is more than 10% less than estimate based on completed similar effort
	Medium	Schedule is between 5% and 10% less than estimate based on completed similar effort
	Low	Schedule is less than 5% less than estimate based on completed similar effort
Cost	High	Estimate At Complete (EAC) exceeds budget by more than 10%
	Medium	EAC exceeds budget between 5% and 10%
	Low	EAC is less that 5% over budget
Technical *(contractor experience)*	High	No experience delivering IT projects for CMS or another HHS department or agency Current Capability Maturity Model Integration assessment is less than 3
	Medium	At least one IT project with CMS or another HHS department or agency Current Capability Maturity Model Integration assessment equals 3
	Low	At least three successful IT projects with CMS Current Capability Maturity Model Integration assessment greater than 3
Overall Risk / Opportunity	High	More than 5 major risks identified and in mitigation
	Medium	Between 1 and 5 major risks identified and in mitigation
	Low	No major risks identified or all are currently mitigated

Table 5: Risks to Address at PBR

5.2 XLC Phase – Requirements Analysis and Design

Overview: During the Requirements Analysis and Design Phase, a common set of business rules are refined and the business requirements are validated and decomposed into functional and non-functional requirements. The requirements are used to define the design in detail, including inputs, processes, outputs, and interfaces, and permit further detailed project management planning. Detailed specifications are developed to support the IT solution that fulfills the requirements for a particular release. The requirements and logical description of the entities, relationships, and attributes of the data are defined and allocated into system and data design specifications. Initial traceability is started between requirements, design and solution testing. These design specifications are organized in a way suitable for implementation and testing within the constraints of a physical environment (e.g., computer, database, and infrastructure).

Outcomes: The outcomes of the Requirements Analysis and Design Phase include:

- Baselined business, functional, and non-functional requirements for release
- Baselined design for the release system components, services, data, security, and infrastructure
- Common repository of business rules, for use by the shared services and all relevant stakeholders.

5.2.1 Requirements Review (RR)

Purpose: Verify that the requirements are complete, accurate, consistent and problem-free; evaluate the responsiveness to the business requirements; ensure that the requirements are a suitable basis for subsequent design activities; ensure traceability between the business and system requirements; and affirm final agreement regarding the content of the Requirements Document by the business owner.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Interim)
- Project Schedule (Interim)
- Risk Register (Interim)

Security Artifacts:

- Contingency Plan (Interim)
- Information Security Risk Assessment (ISRA) (Interim)
- Privacy Impact Assessment (Interim)
- System Security Plan (Interim)

Systems Development Artifacts:

- Logical Data Model (Final)
- Requirements Document (Baseline)
- Release Plan (Interim)
- Section 508 Assessment (Interim)
- System of Records Notice (Preliminary)

- Test Plan (Preliminary)

5.2.2 Preliminary Design Review (PDR)

Purpose: Verify the preliminary design satisfies the functional and nonfunctional requirements and is in conformance with CMS's Technical Reference Architecture (TRA); determine technical solution's completeness and consistency with CMS standards; raise and resolve any technical and/or project-related issues, to identify and mitigate project, technical, security, and/or business risks affecting continued detailed design and subsequent development, testing, implementation, and operations and maintenance activities.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Interim)
- Project Schedule (Interim)
- Risk Register (Interim)

Security Artifacts:

- Contingency Plan (Interim)
- Information Security Risk Assessment (Interim)
- Privacy Impact Assessment (Interim)
- System Security Plan (Interim)

Systems Development Artifacts:

- Computer Match Agreement / Interagency Agreement (Preliminary)
- Database Design Document (Preliminary)
- Data Conversion Plan (Preliminary)
- Data Use Agreement (Preliminary)
- Implementation Plan (Preliminary)
- Interface Control Document (Preliminary)
- Physical Database/Model (Preliminary)
- Release Plan (Final)
- Section 508 Assessment (Interim)
- System Design Document (Preliminary)
- System of Records Notice (Final)
- Test Case Specification (Preliminary)
- Test Plan (Interim)
- User Manual (Preliminary)
- Operations & Maintenance Manual (Preliminary)

5.2.3 Detailed Design Review (DDR)

Purpose: Verify the final design satisfies the functional and nonfunctional requirements and is in conformance with CMS's Technical Reference Architecture (TRA); determine technical solution's completeness and consistency with CMS standards; raise and resolve any technical and/or project-related issues, to identify and mitigate project, technical, security, and/or business risks affecting continued detailed design and subsequent development, testing, implementation, and operations and maintenance activities. The DDR can be either a delegated review or a governance review with the TRB based on Complexity Level and TRB recommendations:

- For Complexity Level 3 projects the DDR is a governance review with the TRB.
- For Complexity Level 2 projects the TRB reserves the right to elevate the DDR to a goverance review based on the results of the PDR
- For Complexity Level 1 projects the DDR is a delegated review

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Interim)
- Project Schedule (Interim)
- Risk Register (Interim)

Security Artifacts:

- Contingency Plan (Interim)
- Information Security Risk Assessment (Interim)
- Privacy Impact Assessment (Interim)
- System Security Plan (Interim)

Systems Development Artifacts:

- Computer Match Agreement / Interagency Agreement (Final)
- Database Design Document (Preliminary)
- Data Conversion Plan (Preliminary)
- Data Use Agreement (Preliminary)
- Implementation Plan (Preliminary)
- Interface Control Document (Baseline)
- Physical Database/Model (Final)
- Release Plan (Final)
- Section 508 Assessment (Interim)
- System Design Document (Baseline)
- System of Records Notice (Final)
- Test Case Specification (Preliminary)
- Test Plan (Interim)
- User Manual (Preliminary)
- Operations & Maintenance Manual (Preliminary)

5.3 XLC Phase – Development and Test

Overview: During the Development and Test Phase, the detailed requirements and design information documented in the Requirements Analysis and Design phase are transformed into machine-executable form. The detailed requirements and design information are verified and validated so that all of the individual system components (and data) of the IT solution function correctly and interface properly with other components within the system.

As necessary, system hardware, networking, telecommunications and security equipment, and Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS) software are configured. New custom-software business applications and services are developed, database(s) are built, and software components are integrated.

Test data and test case specifications are finalized, and tests are conducted for individual components, integration, and end-to-end functionality from end-consumer to all systems and back, testing all federal and state agencies, as appropriate, to ensure accurate functionality and data. Tests verify and validate the IT solution fulfills all business, functional, and non-functional requirements for the release. Formally controlled and focused testing is performed to uncover and prioritize defects in the IT solution that must be resolved. A number of test categories are performed during the Test Phase (e.g., functional testing, integration testing, user acceptance testing, regression testing, and Section 508 testing).

IT solution system components, data, and infrastructure are migrated from a Development environment to a Test environment to a Pre-Production environment. The Pre-Production environment mirrors the Production environment's infrastructure and security configuration management. In this Pre-Production environment, the IT solution undergoes full integration testing from end-consumer to all systems and back, testing all federal and state agencies, as appropriate, to ensure accurate functionality and data, performance and stress testing, and testing for security risks and vulnerabilities. System deployment into this environment is the means to test the use of the Implementation Plan and O&M manual. All system deployment and configuration management activities are executed as a dry run during this phase, including data conversion. Running the solution in the pre-production environment also provides a realistic training environment for user, operators and maintainers.

Outcomes: The outcomes of the Development and Test phase include baselined and executable software, infrastructure, and database configuration specifications, and test results. Additionally, all IT solution deliverables (executable software, data, configuration files, and documentation) are ready for deployment to the Production environment, and the IT solution is ready for operation.

5.3.1 Environment Readiness Review (ERR)

This review is a combination of three reviews as listed below. These reviews are needed to enter the various verification environments to test the solution and its contingency operations. Not all solutions will go through all environments. Specific requirements for running in each environment are provided by the environment's owner.

5.3.1.1 Validation Readiness Review (VRR)

Purpose: Ensure the system/application completed thorough Development Testing and is ready for turnover to the formal, controlled test environment for Validation testing.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Interim)
- Project Schedule (Interim)
- Risk Register (Interim)

Security Artifacts:

- Contingency Plan (Interim)
- Information Security Risk Assessment (Interim)
- Privacy Impact Assessment (Interim)
- System Security Plan (Interim)

Systems Development Artifacts:

- Business Product / Code (Baseline)
- Database Design Document (Final)
- Data Conversion Plan (Final)
- Data Use Agreement (Interim)
- Implementation Plan (Interim)
- Section 508 Assessment (Interim)
- Test Case Specification (Final)
- Test Plan (Baseline)
- Training Plan (Final)
- User Manual (Interim)
- Operations & Maintenance Manual (Interim)
- Version Description Document (Preliminary)

5.3.1.2 Implementation Readiness Rev (IRR)

Purpose: Ensure the system/application completed thorough Integration Testing and is ready for turnover to the formal, controlled test environment for Production Readiness.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Interim)

- Project Schedule (Interim)
- Risk Register (Interim)

Security Artifacts:

- Authorization Package (Preliminary)
- Contingency Plan (Interim)
- Contingency Plan Test (Preliminary)
- Information Security Risk Assessment (Interim)
- Privacy Impact Assessment (Interim)
- Security Assessment (Preliminary)
- System Security Plan (Interim)

Systems Development Artifacts:

- Data Use Agreement (Interim)
- Implementation Plan (Interim)
- Operations & Maintenance Manual (Interim)
- Section 508 Assessment (Interim)
- Test Summary Report (Preliminary)
- Training Artifacts (Preliminary)
- User Manual (Interim)
- Version Description Document (Baseline)

5.3.1.3 Production Readiness Review (PRR)

Purpose: Ensure that the infrastructure contractor's operational staff has the appropriate startup and shutdown scripts, accurate application architecture documentation, application validation procedures, and valid contact information to ensure operability of infrastructure applications.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Interim)
- Project Schedule (Interim)
- Risk Register (Interim)

Security Artifacts:

- Authorization Package (Final)
- Contingency Plan (Interim)
- Contingency Plan Test (Final)
- Information Security Risk Assessment (Final)
- Privacy Impact Assessment (Final)
- Security Assessment (Final)
- System Security Plan (Final)

Systems Development Artifacts:

- Data Use Agreement (Interim)
- Implementation Plan (Interim)
- Operations & Maintenance Manual (Interim)
- Section 508 Assessment (Interim)
- Test Summary Report (Preliminary)
- Training Artifacts (Preliminary)
- User Manual (Interim)
- Version Description Document (Baseline)

5.4 XLC Phase – Implementation

Overview: During the Implementation Phase, the IT solution is put into production based on Authority to Operate (ATO). For federally owned systems, the final IT solution must receive an Authority to Operate (ATO) before deployment to the Production environment.

Outcomes: For federally owned systems, the IT solution must receive an ATO.

5.4.1 Operational Readiness Review (ORR)

Purpose: Ensure the system/application completed its implementation processes according to plan and that it is ready for turnover to the Operations & Maintenance team and operational release into the Production environment.

Project Management Artifacts:

- Action Items, Decision Log, Issues List, and Lessons Learned (Final)
- Project Schedule (Final)
- Risk Register (Final)

Security Artifacts:

- CMS CIO-Issued Authority to Operate (Final)
- Contingency Plan (Interim)
- Plan of Action & Milestones (Final)

Systems Development Artifacts:

- Data Use Agreement (Final)
- Implementation Plan (Final)
- Section 508 Assessment (Final)
- Test Summary Report (Final)
- Training Artifacts (Final)
- User Manual (Final)
- Version Description Document (Baseline)

5.5 XLC Phase – Operations & Maintenance

Overview: After implementation, the IT solution enters the Operations & Maintenance (O&M) Phase. In O&M the IT solution system components, data, and infrastructure are maintained in the production environment and monitored to ensure they continue meeting business needs. Federally owned systems undergo and Annual Operational Assessment (AOA). The first review for a new system is performed about six months after entering production and is called a Post Implementation Review (PIR). The PIR includes a focus on lessons learned during the development and implementation of the solution. When a system on longer meets a business need it is retired and a Disposition Plan is presented at its last AOA. Once disposition is complete, a Disposition Review is held to ensure the system has been completely transitioned and properly disposed.

Outcomes: The outcomes of the Operations and Maintenance Phase are that all IT solutions continue meeting business needs safely and securely. Once a solution is deemed obsolete, it is retired and disposed without impacting other operations.

5.5.1 Post Implementation Review (PIR)

Purpose: Assess how well the system/application performance meets its goals and recommend continued operations, changes to operations, or retirement. Often PIR is combined with the first Annual Operational Assessment (AOA).

Project Management Artifacts:

- Project Closeout Report (Final)

Security Artifacts:

- Contingency Plan (Final)
- Security Monitoring Reports (Final)

Systems Development Artifacts:

- Post Implementation Report (Final)
- System Disposition Plan (Preliminary)

5.5.2 Annual Operational Assessment (AOA)

Purpose: Evaluate system performance, user satisfaction with the system, adaptability to changing business needs, and new technologies that might improve the system. This review is diagnostic in nature and can lead to development or maintenance activities. Ultimately AOA determines whether the IT Investment should continue, be modified or terminated.

Project Management Artifacts:

- N/A

Security Artifacts:

- Authorization Package (Updated Yearly)
- Contingency Plan (Final)

- Contingency Plan Test (Updated Yearly)
- Information Security Risk Assessment (Updated Yearly)
- Privacy Impact Assessment (Updated Yearly)
- Security Assessment (Updated Yearly)
- Security Monitoring Reports (Final)
- System Security Plan (Updated Yearly)

Systems Development Artifacts:

- Annual Operational Analysis Report (Final)
- System Disposition Plan (Final)

5.5.3 Disposition Review (DR)

Purpose: Ensure the IT investment has been completely and appropriately transitioned /disposed thereby ending the life cycle of the IT project. A Disposition Closeout Certificate is issued upon successful completion of this review.

Project Management Artifacts:

- N/A

Security Artifacts:

- N/A

Systems Development Artifacts:

- Disposition Closeout Certificate (Final)

6. Appendix

This appendix includes tables for ***sample*** complexity level 3, 2, and 1 projects that show reviews and associated artifacts. Every project will vary from these examples and should follow the Project Process Agreement established for that project at its Investment Selection Review.

6.1 Sample Complexity Level 3 Project Reviews and Artifacts

Table 6: Reviews for a Complexity Level 3 Project depicts the artifacts in preliminary (P), baseline (B), interim (I), and final (F) form, and the governance and delegated reviews for a ***sample*** complexity level 3 project. The definitions of the phases, reviews, and associated artifacts are provided in Section 5.

Sample Complexity Level 3 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
Initiation, Concept, and Planning	**Architecture Review (AR)**	Governance	**Project Management Artifacts:** • N/A **Security Artifacts:** • N/A **Systems Development Artifacts:** • Enterprise Architecture Analysis Artifacts (P) • IT Intake Form (F)
	Investment Selection Review (ISR)	Governance	**Project Management Artifacts:** • Project Charter (F) • Project Process Agreement (B) **Security Artifacts:** • Contingency Plan (P) • Information Security Risk Assessment (P) • Privacy Impact Assessment (P) • System Security Plan (P) **Systems Development Artifacts:** • Business Case (F) • Enterprise Architecture Analysis Artifacts (I) • High Level Technical Design (P) • Section 508 Assessment (P) • Requirements Document (P)
	Project Baseline Review (PBR)	Delegated	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (P) • Project Management Plan (F) • Risk Register (P) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Enterprise Architecture Analysis Artifacts (F)

Sample Complexity Level 3 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
			• Logical Data Model (P) • Project Schedule (B) • Release Plan (P) • Requirements Document (I) • Section 508 Assessment (I)
Requirements Analysis and Design	**Requirements Review (RR)**	Delegated	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Logical Data Model (F) • Requirements Document (B) • Release Plan (I) • Section 508 Assessment (I) • System of Records Notice (P) • Test Plan (P)
	Preliminary Design Review (PDR)	Governance	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Computer Match Agreement / Interagency Agreement (P) • Database Design Document (P) • Data Use Agreement (P) • Data Conversion Plan (P) • Implementation Plan (P) • Interface Control Document (P) • Physical Database/Model (P) • Release Plan (F) • Section 508 Assessment (I) • System Design Document (P) • System of Records Notice (F) • Test Case Specification (P) • Test Plan (I) • User Manual (P)

Sample Complexity Level 3 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
			• Operations & Maintenance Manual (P)
	Detailed Design Review (DDR)	Governance	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Computer Match Agreement / Interagency Agreement (F) • Database Design Document (P) • Data Conversion Plan (P) • Data Use Agreement (P) • Implementation Plan (P) • Interface Control Document (B) • Physical Database/Model (F) • Release Plan (F) • Section 508 Assessment (I) • System Design Document (B) • System of Records Notice (F) • Test Case Specification (P) • Test Plan (I) • User Manual (P) • Operations & Maintenance Manual (P)
Development and Test	**Environment Readiness Review (ERR)**	Delegated	**VRR Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **VRR Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **VRR Systems Development Artifacts:** • Business Product / Code (B) • Database Design Document (F) • Data Conversion Plan (F) • Data Use Agreement (I) • Implementation Plan (I) • Section 508 Assessment (I) • Test Case Specification (F) • Test Plan (B) • Training Plan (F)

Sample Complexity Level 3 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
			• User Manual (I) • Operations & Maintenance Manual (I) • Version Description Document (P) **IRR Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **IRR Security Artifacts:** • Authorization Package (P) • Contingency Plan (I) • Contingency Plan Test (P) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • Security Assessment (P) • System Security Plan (I) **IRR Systems Development Artifacts:** • Data Use Agreement (I) • Implementation Plan (I) • Operations & Maintenance Manual (I) • Section 508 Assessment (I) • Test Summary Report (P) • Training Artifacts (P) • User Manual (I) • Version Description Document (B) **PRR Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **PRR Security Artifacts:** • Authorization Package (F) • Contingency Plan (I) • Contingency Plan Test (F) • Information Security Risk Assessment (F) • Privacy Impact Assessment (F) • Security Assessment (F) • System Security Plan (F) **PRR Systems Development Artifacts:** • Data Use Agreement (I) • Implementation Plan (I) • Operations & Maintenance Manual (I) • Section 508 Assessment (I) • Test Summary Report (P) • Training Artifacts (P) • User Manual (I)

Sample Complexity Level 3 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
			• Version Description Document (B)
Implementation	**Operational Readiness Review (ORR)**	Governance	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (F) • Project Schedule (F) • Risk Register (F) **Security Artifacts:** • CMS CIO-Issued Authority to Operate (F) • Contingency Plan (I) • Plan of Action & Milestones (F) **Systems Development Artifacts:** • Data Use Agreement (F) • Implementation Plan (F) • Section 508 Assessment (F) • Test Summary Report (F) • Training Artifacts (F) • User Manual (F) • Version Description Document (B)

Table 6: Reviews for a Complexity Level 3 Project

6.2 Sample Complexity Level 2 Project Reviews and Artifacts

Table 7: Reviews for a Complexity Level 2 Project depicts the artifacts in preliminary (P), baseline (B), interim (I), and final (F) form, and the governance and delegated reviews for a ***sample*** complexity level 2 project. The definitions of the phases, reviews, and artifacts are provided in Section 5.

Sample Complexity Level 2 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
Initiation, Concept, and Planning	**Architecture Review (AR)**	Governance	**Project Management Artifacts:** • N/A **Security Artifacts:** • N/A **Systems Development Artifacts:** • Enterprise Architecture Analysis Artifacts (P) • IT Intake Form (F)
	Investment Selection Review (ISR)	Governance	**Project Management Artifacts:** • Project Process Agreement (B) **Security Artifacts:** • Contingency Plan (P) • Information Security Risk Assessment (P) • Privacy Impact Assessment (P) • System Security Plan (P) **Systems Development Artifacts:** • Business Case (F) • High Level Technical Design (P) • Requirements Document (P)
	Project Baseline Review (PBR)	Delegated	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (P) • Project Management Plan (F) • Risk Register (P) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Project Schedule (B) • Release Plan (P) • Requirements Document (I)
Requirements Analysis and Design	**Requirements Review (RR)**	Delegated	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I)

Sample Complexity Level 2 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
			• System Security Plan (I) **Systems Development Artifacts:** • Logical Data Model (F) • Requirements Document (B) • Release Plan (I) • Section 508 Assessment (I) • System of Records Notice (P) • Test Plan (P)
	Preliminary Design Review (PDR)	Governance	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Computer Match Agreement / Interagency Agreement (P) • Interface Control Document (P) • Release Plan (F) • Requirements Document (B) • System Design Document (P) • System of Records Notice (F) Test Plan (I)
	Detailed Design Review (DDR)	Delegated (may be elevated to Governance by TRB)	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Computer Match Agreement / Interagency Agreement (F) • Implementation Plan (P) • Interface Control Document (B) • Release Plan (F) • System Design Document (B) • System of Records Notice (F) • Test Case Specification (P) • Test Plan (I) • User Manual (P) Operations & Maintenance Manual (P)

Sample Complexity Level 2 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
Development and Test	**Environment Readiness Review (ERR)**	Delegated	**VRR Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **VRR Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **VRR Systems Development Artifacts:** • Business Product / Code (B) • Data Use Agreement (I) • Implementation Plan (I) • Test Case Specification (F) • Test Plan (B) • Training Plan (F) • User Manual (I) • Operations & Maintenance Manual (I) • Version Description Document (P) **IRR Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **IRR Security Artifacts:** • Authorization Package (P) • Contingency Plan (I) • Contingency Plan Test (P) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • Security Assessment (P) • System Security Plan (I) **IRR Systems Development Artifacts:** • Data Use Agreement (I) • Implementation Plan (I) • Operations & Maintenance Manual (I) • Test Summary Report (P) • Training Artifacts (P) • User Manual (I) • Version Description Document (B) **PRR Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **PRR Security Artifacts:**

Sample Complexity Level 2 Project – follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
			• Authorization Package (F) • Contingency Plan (I) • Contingency Plan Test (F) • Information Security Risk Assessment (F) • Privacy Impact Assessment (F) • Security Assessment (F) • System Security Plan (F) **PRR Systems Development Artifacts:** • Data Use Agreement (I) • Implementation Plan (I) • Operations & Maintenance Manual (I) • Test Summary Report (P) • Training Artifacts (P) • User Manual (I) • Version Description Document (B)
Implementation	**Operational Readiness Review (ORR)**	Governance	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (F) • Project Schedule (F) • Risk Register (F) **Security Artifacts:** • CMS CIO-Issued Authority to Operate (F) • Contingency Plan (I) • Plan of Action & Milestones (F) **Systems Development Artifacts:** • Data Use Agreement (F) • Implementation Plan (F) • Test Summary Report (F) • Training Artifacts (F) • User Manual (F) • Version Description Document (B)

Table 7: Reviews for a Complexity Level 2 Project

6.3 Sample Complexity Level 1 Project Reviews and Artifacts

Table 8: Reviews for a Complexity Level 1 Project depicts the artifacts in preliminary (P), baseline (B), interim (I), and final (F) form, and the governance and delegated reviews for a sample complexity level 1 project. The definitions are provided in Section 5.

Sample Complexity Level 1 Project – Follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
Initiation, Concept, and Planning	**Architecture Review (AR)**	Governance	**Project Management Artifacts:** • N/A **Security Artifacts:** • N/A **Systems Development Artifacts:** • IT Intake Form (F)
	Investment Selection Review (ISR)	Governance	**Project Management Artifacts:** • Project Process Agreement (B) **Security Artifacts:** • Contingency Plan (P) • Information Security Risk Assessment (P) • Privacy Impact Assessment (P) • System Security Plan (P) **Systems Development Artifacts:** • Business Case (F) • High Level Technical Design (F) • Requirements Document (P)
	Planning work needed for success in later reviews		**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (P) • Project Management Plan (F) • Project Schedule (B) • Risk Register (P) **Security Artifacts:** • Privacy Impact Assessment (F) **Information Technology Artifacts:** • N/A
Requirements Analysis and Design	**Preliminary Design Review (PDR)**	Delegated	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Interface Control Document (P) • Test Plan (P)
	Detailed Design Review	Delegated	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and

Sample Complexity Level 1 Project – Follow your Project Process Agreement			
XLC Phase	XLC Review	Review Type	Artifacts
	(DDR)		• Lessons Learned (I) • Project Schedule (I) • Risk Register (I) **Security Artifacts:** • Contingency Plan (I) • Information Security Risk Assessment (I) • Privacy Impact Assessment (I) • System Security Plan (I) **Systems Development Artifacts:** • Interface Control Document (B)
Development and Test	**Development and test work needed for success in later reviews**		**Project Management Artifacts:** • N/A **Security Artifacts:** • Contingency Plan (I) **Information Technology Artifacts:** • Business Product / Code (B) • Test Plans (B)
Implementation	**Operational Readiness Review (ORR)**	Governance	**Project Management Artifacts:** • Action Items, Decision Log, Issues List, and Lessons Learned (F) • Project Schedule (F) • Risk Register (F) **Security Artifacts:** • CMS CIO-Issued Authority to Operate (F) • Contingency Plan (I) • Plan of Action & Milestones (F) **Systems Development Artifacts:** • Test Summary Report (F) • Version Description Document (B)

Table 8: Reviews for a Complexity Level 1 Project